



# Science, Technology, & More!



## Graded Exercise

## ER4: Recycling Plastic

**Check your tray.** It should contain a cup with 6 different plastic pellets, a test tube labeled "Alcohol", a test tube labeled "Water", a stirring rod, and a plastic pipette. *Put a check mark in the Box 1 when you have identified them all.*

1.

**Describe the pellets.** Each plastic pellet has a different shape and/or color to distinguish it from the others. *In Box 2, describe the six pellets.*

2.

A:	B:
C:	D:
E:	F:

**Density Test I.** Some of the pellets are more dense than water. Drop the pellets into the water test tube and see which sink. *In Box 3, identify the pellets that sank, and in Box 4, identify the pellets that sank, using the descriptions you made in Box 2.*

3.

4.

**Density Test II.** Some of the pellets are less dense than alcohol. Use the pipette to add alcohol to the water a little at a time, swirling the test tube to mix. The pellets will begin to float when then density of the liquid matches the density of the pellet. *In Box 5, list the pellets in the order that they rose to the surface, using the descriptions you made in Box 2.*

5.

Plastic #1	Plastic #2	Plastic #3	Plastic #4	Plastic #5	Plastic #6

Recycling Code	Density (g/ml)	Uncertainty (g/ml)
#1 (PETE)	1.38	0.01
#2 (HDPE)	0.96	0.01
#3 (PVC)	1.26	0.10
#4 (LDPE)	0.93	0.01
#5 (PP)	0.90	0.01
#6 (PS)	1.06	0.01

Put the recycling codes in order of density, with the LOWEST density at the top of the list and the HIGHEST density at the bottom.

Recycling Code	Density (g/ml)

Label the plastics by whether they will float or sink in the test tubes below.

Example

2, 4, 5					
Water	Alcohol	Great Salt Lake	density = 0.97	density = 0.94	density = 0.92
1, 3, 6					

Liquid	Density (g/ml)
Distilled Water	1.00
Denatured Alcohol	0.79
Great Salt Lake	1.18
Mixtures	??